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Agricultural Memorandum No 563

Powdery Scab in Potatoes - L P Smith

The incidence in powdery scab over the years 1921-1970 is available in terms of a rating scale 0-5.

These data for north-east England were examined with reference to conditions at Cranwell and Goole (the bulk of the potatoes are in Lincolnshire and East Riding).

The following factors were considered

(a) Rating of the previous 2 years
(b) End of May soil moisture deficit (actual)
(c) Maximum SMD (actual) in June
(d) Mean moisture available within top soil which could hold 2in of water as a maximum in July
(e) ditto in August
(f) August mean 1 ft soil temperature.

thinking that presence of inoculum, soil moisture and soil temperature were likely to be important.

Results. Full results are given in the Appendix, and can be summarized as follows:-

	Incidence and Mean Rating		Mean of (b)	Mean of (c)	Mean of (d)	Mean of (e)	Mean of (f)
After HIGH incidence	HIGH	3.8	1.15	2.73	0.5	0.75	60.2
	MOD	2.7	0.54	2.39	0.2	0.4	62.2
	LOW	1.1	1.75	2.99	0.35	0.5	61.7
After MODERATE incidence	HIGH	3.9	1.17	2.33	0.55	1.05	59.9
	MOD	2.2	1.86	2.91	0.6	0.55	60.4
	LOW	0.7	1.78	3.19	0.35	0.65	61.6
After LOW incidence	HIGH	no occasions					
	MOD	2.2	1.92	2.84	0.45	0.50	63.1
	LOW	0.6	1.27	2.37	0.25	0.55	61.2

These figures suggest that wet cool top soil during the July August period may be signficant.

Any comments or suggestions on this paper should be referred to the author.

Meteorological Office
Bracknell

July 1973

APPENDIX

YEAR	Rating	End of MAY deficit	Maxm JUNE deficit	Mean JULY topsoil moisture		Mean AUGUST topsoil moisture		Mean AUG soil temp
		Cranwell	Cranwell	Cranwell	Goole	Cranwell	Goole	
(a)	Following a high rating over last two years (greater than 5)							
1922	5	2.50	4.04	1.48	0.95	1.50	1.39	57.7
1923	3.5	0.60	2.46	0.24	0.30	0.63	0.09	60.0
1924	3.5	0.01	2.10	0.06	0.04	0.14	0.64	59.3
1927	3.5	2.11	2.63	0.40	0.65	0.83	0.89	60.5
1928	4	1.64	2.58	0.03	0.01	0.50	0.67	60.6
1932	3.5	0.05	2.59	1.20	0.71	0.98	0.78	63.4
MEAN	3.8	1.15	2.73	0.5		0.75		60.2
1925	2.5	0.54	3.16	0.01	0.05	0.06	0.38	61.8
1926	3	0.40	1.32	0.05	0.10	0.48	0.56	60.9
1937	3	0.36	2.22	0.82	0.09	0.20	0.02	62.8
1938	3	0.00	2.32	0.24	0.31	0.08	0.73	62.9
1939	2	1.55	2.64	0.20	0.33	0.71	0.27	62.8
1967	2.5	0.40	2.67	0.21	0.02	0.70	0.72	62.1
MEAN	2.7	0.54	2.39	0.2		0.4		62.2
1921	1	2.01	3.49	0.00	0.01	0.97	0.85	61.8
1929	1	2.25	3.43	0.06	0.12	0.09	0.43	59.9
1933	1	1.45	2.59	0.03	0.12	0.00	0.00	63.9
1968	1.5	1.28	2.45	1.07	1.47	0.96	0.79	61.3
MEAN	1.1	1.75	2.99	0.35		0.5		61.7

YEAR	RATING	End of MAY deficit	Maxm JUNE deficit	Mean JULY topsoil moisture		Mean AUGUST topsoil moisture		Mean AUG soil temp
		Cranwell	Cranwell	Cranwell	Goole	Cranwell	Goole	
(b)	Following a moderate rating over last two years (2.5 to 5)							
1930	4	1.28	2.96	0.54	0.77	0.79	1.31	59.9
1931	4	0.30	1.23	1.03	1.20	1.52	1.55	58.7
1965	3.5	1.53	2.54	0.21	0.32	0.21	0.50	60.3
1966	4	1.59	2.57	0.12	0.33	0.72	1.84	60.6
MEAN	3.9	1.17	2.33	0.55		1.05		59.9
1936	3	2.07	2.44	1.29	0.84	0.43	0.55	59.3
1940	2	2.03	3.86	0.71	1.18	0.03	0.35	61.4
1943	2	1.48	2.53	0.07	0.02	0.09	0.28	61.6
1963	2	1.86	2.83	0.04	0.82	1.31	1.24	59.4
MEAN	2.2	1.86	2.91	0.6		0.55		60.4
1934	0	2.19	3.52	0.48	0.02	0.17	0.05	61.1
1941	1	1.28	3.32	0.51	0.41	1.60	0.73	59.3
1942	1.5	1.29	2.63	0.07	0.06	0.26	0.22	61.3
1944	0	1.88	3.27	0.28	1.04	0.75	0.69	63.3
1956	0	2.59	2.69	0.59	0.34	0.87	1.83	58.6
1959	1.5	2.34	4.05	0.03	0.02	0.18	0.01	64.6
1960	0	2.44	4.11	0.62	1.29	0.32	0.72	62.3
1962	1.5	1.48	3.72	0.16	0.08	0.90	0.81	60.3
1964	1	2.25	2.23	0.02	0.03	0.11	0.04	61.9
1969	0	0.06	2.40	0.27	0.25	0.92	1.51	63.5
MEAN	0.7	1.78	3.19	0.35		0.65		61.6

YEAR	Rating	End of MAY deficit	Maxm JUNE deficit	Mean JULY topsoil moisture		Mean AUGUST topsoil moisture		Mean AUG soil temp
		Cranwell	Cranwell	Cranwell	Goole	Cranwell	Goole	
(c)	Following a low rating over last two years (less than 2.5)							
1935	2.5	2.55	3.49	0.01	0.00	0.02	0.38	64.8
1955	2	1.07	1.20	0.13	0.19	0.01	0.02	64.6
1958	2	1.35	1.85	1.30	1.51	1.07	1.59	61.9
1961	2.5	2.19	3.54	0.35	0.30	0.50	0.48	61.2
1970	2	2.45	4.14	0.16	0.33	0.55	0.21	63.0
MEAN	2.2	1.92	2.84	0.45		0.50		63.1
1945	1	0.83	2.15	0.27	0.06	0.33	0.49	60.7
1946	0	1.75	2.26	0.30	0.09	0.94	0.92	59.8
1947	0	2.40	3.47	0.25	0.22	0.00	0.01	66.1
1948	1	1.01	1.11	0.55	0.15	0.56	0.60	60.0
1949	0	1.31	3.11	0.55	0.40	0.07	0.12	62.0
1950	1	0.54	2.70	0.18	0.19	0.01	0.65	61.4
1951	1	0.40	2.52	0.01	0.05	1.00	1.43	59.9
1952	0	1.87	2.07	0.00	0.27	0.08	0.11	61.5
1953	1	0.70	1.39	0.11	0.49	0.03	0.39	60.9
1954	1	0.57	1.46	0.15	0.42	0.90	1.36	58.6
1957	1	2.47	3.80	0.34	0.95	0.24	1.45	61.9
MEAN	0.6	1.27	2.37	0.25		0.55		61.2